

CLAIMS

What we claim is:

- 1 1. A device module comprising:
 - 2 a board;
 - 3 a plurality of devices mounted to the board;
 - 4 a first set of contact points provided adjacent a first side of the board for
 - 5 connecting to a first data bus;
 - 6 a second set of contact points provided adjacent to a second side of the board for
 - 7 connecting to a second data bus;
 - 8 a plurality of signal paths provided on the board, each signal path extending
 - 9 between a first contact point in the first set and a second contact point in the second set;
 - 10 wherein each of the plurality of signal paths has substantially an identical length
 - 11 and a same number of turns on the board.
- 1 2. The device module of claim 1, wherein each of the plurality of signal paths
- 2 includes a number of turns that is less than or equal to two.
- 1 3. The device module of claim 1, wherein the board includes a bottom edge that is
- 2 configured to be edge-mounted to a substrate, and wherein one of the first set of contact
- 3 points for at least some of the plurality of signal paths is provided adjacent to the bottom
- 4 edge and proximate to one of the lateral sides, and wherein for each of the contact points
- 5 provided adjacent to the bottom edge and proximate to one of the lateral sides, a
- 6 corresponding signal path has two turns on the board.
- 1 4. The device module of claim 1, wherein the board includes a bottom edge that is
- 2 configured to be edge-mounted to a substrate, and a pair of lateral sides that extend from
- 3 the bottom edge, and wherein each contact point in the first set of contact points is
- 4 provided on or adjacent to one of the lateral sides, and wherein for each contact point in

5 the first set, a corresponding signal path extends to a corresponding contact point in the
6 second set, and wherein said corresponding signal path has less than two turns on the
7 board.

1 5. The device module of claim 4, wherein for each contact point in the first set, the
2 corresponding signal path that extends to the corresponding contact point in the second
3 set has zero turns on the board.

1 6. The device module of claim 1, wherein at least some of the plurality of
2 components are memory devices.

1 7. A system for providing high-speed interconnectivity between a controller and a
2 plurality of memory devices, the system comprising:

3 a set of one or more boards upon which the plurality of memory devices are
4 provided, wherein the set includes at least a first board on which at least some of the
5 plurality of memory devices are provided;

6 a plurality signal paths provided on the first board, wherein each signal path in the
7 plurality of signal paths includes a first set of contact points that interconnect the first
8 board to the controller from a position that is proximate to a first lateral side of the first
9 board, and a second set of contact points that interconnect the board to another
10 component from another position that is proximate to a second lateral side of the first
11 board, and wherein each of the plurality of signal paths has a substantially identical
12 length and an identical number of turns between a contact point in the first set of contact
13 points and a contact point in the second set of contact points; and

14 a bus connected to the first set of contact points and communicatively coupled to
15 the controller.

1 8. The system of claim 7, wherein the bus is provided through a flex cable.

1 9. The system of claim 8, wherein an end of the flex cable is directly connected to
2 the controller.

1 10. The system of claim 7, wherein the first board is edge-mounted to a motherboard
2 on a bottom side, and wherein a contact point in the first set of contact points for at least
3 some of the plurality of signal paths is provided adjacent to a bottom edge, and wherein
4 for each contact point provided adjacent to the bottom edge, the signal path of that
5 contact point has two turns on the board.

1 11. The system of claim 7, wherein the first set of contact points and the second set of
2 contact points are positioned on the first board so that the signal path extending between a
3 a contact point in the first set of contact points and a contact point in the second set of
4 contact points has less than two turns on the board.

1 12. The system of claim 7, wherein the first set of contact points and the second set of
2 contact points are positioned on the first board so that the signal path extending between a
3 contact point in the first set of contact points and a contact point in the second set of
4 contact points has zero turns on the board.

1 13. The system of claim 7, further comprising a motherboard upon which the
2 controller and the set of one or more boards are mounted, and wherein the bus is external
3 to the motherboard.

1 14. The system of claim 7, wherein the first board is connected to a second board in
2 the set via a second bus provided on a flex cable.

1 15. The system of claim 14, wherein the first board and the second board are each
2 mounted to a motherboard.
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1 16. A connector for edge-mounting a module device to a substrate, the connector
2 comprising:

3 a first segment;

4 a second segment;

5 an opening formed between the first segment and the second segment, wherein the
6 opening is dimensioned to receive the substrate;

7 wherein at least one of the first segment and the second segment includes a
8 plurality of connector members, each of the at least one connector members being
9 positioned to extend electrical contact from a point on the substrate to a tip of that
10 connector member that extends into the opening;

11 wherein each of the at least one of the plurality of connector elements has a
12 majority of its length be substantially linear and is angled with respect to a plane of the
13 substrate.

1 17. The connector of claim 16, wherein a substantial portion of the at least one of the
2 plurality of connector elements is linear.

1 18. The connector of claim 16, wherein a substantial portion of the at least one of the
2 plurality of connector elements between 20 and 70 degrees with respect to the plane of
3 the substrate.

1 19. The connector of claim 16, wherein a substantial portion of the at least one of the
2 plurality of connector elements between 30 and 60 degrees with respect to the plane of
3 the substrate.

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5 20. The connector of claim 16, wherein a substantial portion of the at least one of the
6 plurality of connector elements between 45 degrees with respect to the plane of the
7 substrate.

1 21. A system for providing high-speed interconnectivity between a controller and a
2 plurality of memory devices, the system comprising:
3 a board upon which the plurality of memory devices are provided;
4 a connector that couples the board to a substrate, wherein the connector
5 comprises:
6 a first segment;
7 a second segment;
8 an opening formed between the first segment and the second segment,
9 wherein the opening is dimensioned to receive the substrate;
10 wherein at least one of the first segment and the second segment includes a
11 plurality of connector members, each of the at least one connector members being
12 positioned to extend electrical contact from a point on the substrate to a tip of that
13 connector member that extends into the opening;
14 wherein each of the at least one of the plurality of connector elements has
15 a majority of its length be substantially linear and is angled with respect to a plane
16 of the substrate;
17 and wherein the connector extends communications from the controller to the
18 board.

1 22. The connector of claim 21, wherein the connector includes a mechanism for
2 extending a bus embedded within a cable from the controller to the board.